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quainted with the state of those, which are found actually under the sea, and the revolutions, to which they are subject, while they are covered by it. It is still farther requisite to have an attention to the revolutions, which have been and are constantly observed, with respect to the sea-shores, which change their situation in several parts, some advancing upon the land, and others retiring. If all these different facts be compared together, it will not be doubted, but there are actually under the earth marine bodies, which are found there only in consequence of these slow revolutions, and not of an universal deluge. Perhaps this notion might be extended to the greatest part of the marine fossil bodies, which are known to us.

Monf. Donati informs me, that he would be glad to present to the Royal Society an history of coral, if he thought, that it would be agreeable to them.

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**XII.** *A brief Botanical and Medical History of the Solanum Lethale, Bella-donna, or Deadly Nightshade, by Mr. Richard Pultney. Communicated by Mr. William Watson, F. R. S.*

Read Feb. 17. 1757. **B**ELLA-DONNA is the name, which the Italians, and particularly the Venetians, apply to this plant; and Mr. Ray (1) observes, that it is so called because the Italian ladies

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(1) Nom. Etymol. ad Calcem. Cat. Cant. p. 43. item Hist. Plant. p. 680.

make a cosmetic from the juice, or distilled water, which they use to make their complexion fair and white. Others (2) suppose it derives its name from its intoxicating quality. With us it is generally known by the name of Deadly Nightshade, or Dwale, tho' this last term is seldom used for it; and the old French word *Morelle*, which Lobel applies to it, seems to be quite forgotten amongst us.

#### CLASSICAL DISTRIBUTION.

The Deadly Nightshade was very soon discovered by the revivers of botany after the restoration of learning; and, agreeable to the fashion of those days, it was greatly debated among the commentators, whether it was known, and by what name, to the fathers of botany Theophrastus and Dioscorides. Several of the writers of that time, as Dodonæus, Guilandinus, Fuchsius, and Cordus, were of opinion, that it was the *Mandragora morion* of Theophrastus; and their sentiments were espoused by his learned commentator Bodæus à Stapel (3), who moreover supposes it the plant, which Dioscorides describes, lib. iv. cap. 69. under the name of *Στρυχνος μανικὸς*. On the other hand, Matthioli (4) has taken great pains to prove, that it is not the *Mandragora* of Theophrastus; and both he and Ruellius (5) are

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(2) *Bella donna dicitur quod imaginationes non injucundas efficiat, vel ut honeste satis Plinius, quod lufum generet. Bod. Comment. in Theophr. p. 586. quod in somnis pulchras ostendat virgines feminasque. Ibid. p. 1078.*

(3) *Locis citatis.*

(4) *Oper. omnia edit C. B. p. 756.*

(5) *Ruell. in Dioscor. p. 536.*

inclined to think, that the *Bella-donna* was not known to either of the Grecian Fathers; who are so short, vague, and immethodical, in their descriptions, that it is very difficult, not to say impossible, to apply them to particular species with justness and precision.

Be this as it will, our restorers of botany agreed in general to rank it with the *Solana*, or *Nightshades*; and as most of them took it to be the *Στεῦχος μαῖνος* of Dioscorides, so we find thereto the addition of some epithet, expressive of its deleterious quality, in most of their writings; such as *lethale*, *somniferum*, *furiosum*, &c. Its general agreement with the plants of that genus, and also the knowledge the world soon had of its poisonous quality, when it is considered, that systematic distributions, from the parts of fructification, had not been thought of at that time: these, I say, were sufficient reasons for referring it to the *Nightshades*. By such names therefore is it found in most of the old writers; till Clusius, who, observing perhaps, that it differed in its parts of fructification from the *Solana*, adopted the indigenous Italian name, as a generical one, and called it *Bella-donna*. Cæsalpinus, the first inventor of a botanic system, did not separate it from the *Nightshades*. Morison and Ray, the revivers of method almost an hundred years afterwards, were aware of the difference; the former having placed it in a chapter among the *Solanis affines*, and the latter constituted a distinct genus of it, tho' he retained the old name in his history of plants. Tournefort adopted Clusius's name *Bella-donna*, and was followed by all the systematic botanists, who have since wrote; as Boerhaave, Rivini, Ruppis, Knaut,

Knaut, Magnol, Ludwig, and Haller; until Linnæus, conformable to the 229th rule of the *Fundamenta Botanica* (6), rejected it, and very expressly calls it *Atropa* (7); in which he is followed by all succeeding writers, who have chosen his method.

Cæsalpinus, Morison, Ray, Herman, and Boerhaave, who range these plants according to the fruit, place the Deadly Nightshade among the *Herbæ Bacciferae* in their respective systems.

Rivinus, Ludwig, and Christian Knaut, who adopt the number and regularity of the petals in the corolla, for their classical character, refer it to such as have regular monopetalous flowers. Ruppius, whose method is upon the same plan, brings it among the irregular monopetalous ones.

Tournefort's method, which is established upon the figure of the flower, takes it into the first class among such plants as have campaniform or bell-shaped flowers.

Dr. Van Royen, whose system is undoubtedly a very elegant attempt towards the natural method in botany, arranges it among such as he calls *Oligantheræ*; namely, such plants as have the stamina equal to, or fewer in number than, the segments of the corolla.

Dr. Haller, whose method is upon the plan of a natural one also, includes the *Bella-donna* among the *Isoptemones*, such plants as have the number of the stamina equal to the segments of the corolla.

(6) Nomina generica quæ ex Græca vel Latina lingua radicem non habent rejicienda sunt.

(7) *Atropos una furiarum.* Crit. Botan. p. 75.

In the sexual system of Linnæus, at this time so generally received, and so well established, it belongs to the Pentandria monogynia, or such plants as have five stamina and one style. The plants of this order are arranged into five subdivisions. The *Atropa* comes in among those, that have declinated stamina. According to this method, we shall give its generical characters from the last edition of Linnæus's *Genera Plantarum*.

The most obvious and essential character of the genus is the *globose berry, and open calyx* (8). The general character is as follows.

*ATROPA* Linn. Gen. Plant. Ed. 5. N°. 222.

The calyx is a gibbous permanent perianthium, formed of a single leaf divided into five acute segments.

The corolla is formed of a single bell-shaped petal, the tube of which is very short; the limb ventricose, of an oval figure, and longer than the calyx. The mouth is small, expanded, and divided into five pretty equal segments.

The stamina are five subulated filaments proceeding from the base of the flower, and are of the same length: at the base they are connivent, and at the top bent outwardly. The antheræ are thick and assurgent.

The germen is of a semiovated figure: the style is filiform, of the length of the stamina, and inclined. The stigma is capitated, transversely oblong, and assurgent.

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(8) See Lin. Syft. Naturæ, edit. Lugd. Bat. 1756. p. 97. N°. 222.

The fruit is a globose berry, standing in a large cup, and containing three cells. The receptacle is convex on both sides, and kidney-shaped.

The seeds are numerous, and kidney-shaped also.

*The SPECIES.*

1. *Atropa caule herbaceo, foliis ovatis integris.* Linn. Spec. Plant. p. 181.  
*Atropa.* Linn. Hort. Cliff. 57. Roy. Lugd. 423. Hort. Upf. 45. Dalib. Paris. 70.  
*Bella-donna majoribus foliis et floribus.* Tourn. Inst. 77. Boerh. Lugd. II. 69. Miller, plate 62.  
*Bella-donna dicta Solanum lethale.* Hill. Herb. Britan. p. 328. tab. 47.  
*Bella-donna.* Clus. Pan. p. 503. Bod à Stap. p. 586. Cat. Giffen. 142. Raii Syn. ed. 3. p. 265. Vailant. Botan. Par. p. 20. Hall. Helv. 507. Dale Pharmacol. 4<sup>o</sup> ed. p. 72. Wilson. Synop. p. 122.  
*Solanoc ongener flore campanulato vulgatus, latioribus foliis.* Hist. Oxon. III. p. 532. sect. 13. tab. 3. fig. 4.  
*Solanum somniferum.* Fuchf. 689. Icon. opt.  
*Solanum maniacum multis sive Bella-donna.* J. B. III. p. 611.  
*Solanum melanocerasos.* C. B. pin. 166.  
*Solanum lethale.* Ger. 169. emac. 340. Park. 346. Raii Hist. Plant. 679.  
*Solanum majus sive Herba Bella-donna.* Matthiol. Oper. Omn. p. 756.  
*Solanum somniferum et lethale.* Lobel. Adversar. p. 102.

*Deadly Nightshade, or Dwale.*

2. *Atropa caule fruticoso*. Spec. Plant. 182.  
*Bella-donna frutescens rotundifolia Hispanica*.  
 Tourn. Inft. 77.  
*Solanum frutex rotundifolium Hispanicum*. Bar-  
 ril. Obf. 2. Icon. 1173.  
*Round-leaved shrubby Spanish Bella-donna*.
  
3. *Atropa foliis finuato-angulatis, calycibus clausis*  
*acutangulis*. Spec. Plant. 181.  
*Bella-donna flore magno violaceo*. Hill. Herb.  
 Brit. 329.  
*Alkekengi amplo flore violaceo*. Few. Per. 724.  
 tab. 16.  
*Large violet-flower'd Bella-donna, or Deadly Night-*  
*shade*.

The first of the species here enumerated is the plant in question. The second has been found growing naturally in no other country than Spain. The third was first discovered by Father Feuillée in Peru, and is therefore only an inhabitant of the gardens in this part of the world.

#### *The DESCRIPTION.*

The root is perennial. It is pretty long, and divided into many branches of a brown colour, succulent, and of a disagreeable smell. The radical leaves are frequently a foot long, and five inches broad, of an oval acuminate figure, and not sinuated on the edges. The stalk rises to three or four feet: it is much divaricated and branched. The cauline leaves stand alternately upon it, in shape like the radical,  
of



of a dusky-green colour on the upper part, and a paler green underneath, being a little hairy on both sides. The flowers stand on single footstalks, in the alæ of the leaves: they are large, of a campanulated figure, and striated, of a dusky-purple colour within, with a yellow variegated base; the outer surface of the flower is of a greenish red. After the flower succeeds a fine beautiful large berry, which is black when ripe. For the rest, take in the generical character.

Most of the old authors give us figures of this plant, which, tho' they convey a general idea of it, are yet scarce any of them exact. This fault in general runs thro' all, that I have had an opportunity of examining; namely, that the flowers and fruit are represented by much too large in proportion to the leaves. Morison's is perhaps one of the best among the old figures: it is, upon the whole, tolerable, but not accurate on account of the before-mentioned objection. Petiver's does by no means represent the plant justly, in that the alæ of the leaves are not properly filled up. The most accurate figure of all, that I have seen, is Mr. Miller's, in his plates adapted to the Gardeners Dictionary, which is undoubtedly taken from nature itself.

#### PLACE of GROWTH.

The Deadly Nightshade is found in many parts of Europe, especially in England and in Austria; and yet in our own country it is happily not very plentiful, inasmuch as our botanical writers usually reckon it among the *more rare* plants, and specify particularly the places where they have observed it.

Here

Here in England it is chiefly found in uncultivated places : in church-yards, about old walls, among rubbish in shady places, about dunghills, in lanes, and sometimes about woods and hedges. It begins to flower in June, and maintains a succession of flowers for two months. The berries are ripe in September and October.

It is of great importance, that the knowledge of poisonous plants should be extended as much as possible, that they may the better be avoided, and their fatal effects thro' mistake be guarded against : there can therefore be no impropriety in enumerating particularly some of those places, where our English botanists have observed it. Mr. Ray mentions its being found in the church-yard and lanes about Fulburn in Cambridgeshire, Sutton-Colefield in Warwickshire : in the Downs : at Cuckstone, near Rochester in Kent, all the yards and backsides are over-run with it. *Ray. Syn.* Upon Clifton-hill, near Nottingham ; also in a quarry near the cold-bath at Mansfield. *Catal. Notting.* In Currenwood - kins, near Burton in Kendal, and other places in Westmorland. *Wilson's Syn.* Dr. Wilmer found it among the bogs going down to Dorking in Surrey, plentifully. In Preston church-yard, near Faversham in Kent. Mr. Watson found it by the wood-side, under the park-wall, between Temsford-mills and Welwyn, Hertfordshire ; and near the road between Rochester and Maidstone. Mr. Blackstone found it in a shady gravel-pit near the old park-wood at Harefield, and in the gardens at More-park near Rickmansworth, plentifully. *Specim. Botan.* About Rochester and Chatham, where it grows in the joints  
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of old walls, and in most of the unfrequented lanes : also in Woodstock-park in Oxfordshire, and Up-park in Hampshire. I have observed it four or five years since on the edge of Charley-forest : about Grace-Dieu, Leicestershire. It grows about North Luffenham in Rutland.

### *Its POISONOUS QUALITY.*

There have been many fatal instances of the narcotic and deleterious effects of the berries of this plant. They are upon record in almost all botanical, and many medical authors. Children have unhappily been the principal sufferers this way, being tempted to eat by the enticing aspect of the berries, or by mistaking them for some other fruit. The berries, however, are not the only part of the plant, which partake of this intoxicating and poisonous property : the whole plant is endued with it, and that in no small degree.

If the *Bella-donna* is allowed to be the *Στρυγχνος μανικός* of Dioscorides (9), this quality of it was not unknown to that writer. It was very soon known to the first writers in the medical and botanic way after the restoration of letters ; and they have not failed to inform us of it.

Tragus and Fuchsius, who wrote about the middle of the sixteenth century, both relate instances of the poisonous effects of these berries : the former, of a man, who went mad after having eaten of them ;

the latter, of two children, who perished by the same means (10).

Lobel (11) tells us, that the berries of this plant are present death; and informs us of some youths, who, after eating them, became stupified, and died as from an over-dose of opium.

Matthiolum (12) relates, from his own knowlege, of some children poisoned by the same means.

Among all the instances of the intoxicating nature of this plant, there is none more memorable than that mentioned by the Scotch historian Buchanan (13), of the destruction of the army of Sweno; which is quoted by almost all authors, who have wrote upon this plant. It is there said, that the Scots mixed a quantity of the juice of these berries with the drink, which, by their truce, they were to supply the Danes with; which so intoxicated them, that the Scots killed the greatest part of them while they were asleep. How far this anecdote is to be depended upon, or whether other concurrent circumstances ought not to be taken into the account, I cannot determine.

Our own herbalist Gerard (14) mentions the case of three boys in the Isle of Ely, who, having eaten of these berries, two of them died in less than eight hours; but the third, by drinking plentifully of honey and water, and vomiting after it, recovered.

(10) See Sennert. lib. vi. par. 7. cap. 9.

(11) Stirpium Adversar. p. 103.

(12) Oper. Omn. p. 754.

(13) Rerum Scoticar. lib. vii.

(14) Ger. em. p. 341.

Bodæus à Stapel, in his comment upon Theophrastus (15), tells us of two youths, that eat two or three of these berries, which they got in the Leyden garden, mistaking them for black currants: one of them perished, and the other recovered with great difficulty.

Simon Pauli relates two or three examples to the same effect (16). Wepfer gives us a circumstantial account of a child about ten years old, who was thrown into a great variety of convulsive symptoms after eating of this fruit: but proper care being taken by vomiting, and afterwards giving alexipharmics and anti-epileptic medicines, he recovered (17).

M. Boulduc (18) laid before the Royal Academy of Sciences at Paris, the case of some children, who, upon eating these berries, were seized with a violent fever, palpitations of the heart, convulsions, and lost their senses. One of them, a little boy of four years old, died the next morning.

Boerhaave has instances to the same effect (19): and it was the misfortune of Dr. Abraham Munting, a noted botanist and professor of physic in the university of Groningen, to have his own daughter poisoned with the berries of the *Bella-donna*.

It would be almost endless to recite all the instances to be met with upon this head. The German Ephemerides, the *Commercium Literarium*, and other periodical works, furnish us with farther proofs

(15) Page 586.

(16) *Quadripart. Botan.* p. 488.

(17) *Cicut. Aquat. Historia et Noxæ.* Basil. 1716. p. 228.

(18) *Histoire de l'Academie Royale.* 1703.

(19) *Hist. Plant. Lugd. Bat. Hort.* p. 510.

of the deadly quality of the Bella-donna ; and they are unhappily corroborated by more recent instances in modern authors. The Gentleman's Magazine (20), Mr. Miller in his Gardeners Dictionary, and Dr. Hill in his British Herbal (21), exhibit to us several melancholy cases of this kind.

The effects of this plant have been so extraordinary, that several distinct treatises have been published professedly upon it. The most remarkable of these is that of J. M. Faber's, printed at Augsburg in 1677, under the following title ; *Strychnomania explicans Strychni manici antiquorum, vel Solani furiosi recentiorum historiam*. In this tract the author has collected a number of cases from various hands, concerning the poisonous quality of the plant in question. In the year 1724. C. Sicelius published a treatise upon this plant, under the title of *Diatriba de Bella-donna*. Jenæ. 8vo.

### MEDICAL HISTORY.

Who it was, that was bold enough to venture first upon the internal use of this plant as a medicine, I cannot say ; chance very probably led to it, as in many other cases. In the mean time, there is reason to believe, that it is not altogether a modern practice. One would be led to think, by the accounts given us in Matthiolum and Bodæus, that in their days its operation was very well known ; and that they knew how to dose it very exactly, since they give us an

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(20) For August and September 1747, and for Sept. 1748.

(21) Page 329.

account of tricks being played with it, by infusing the quantity of a scruple of the root in wine, and intoxicating people therewith. The former of these authors relates, that the distilled water from this plant, in a dose of about two or three spoonfuls, was exhibited by some people in inflammations of the viscera ; and, he observes, with good success. Parkinson seems to have transcribed this account, respecting this use of it ; but neither of them speak of it from their own knowledge. It may be questioned, however, whether this could act otherwise than as mere water ; since the principles with which this plant is endued, do not seem capable (if one may judge from its sensible qualities and effects upon those who have taken it) of rising in a still.

Mr. Ray (22), from the German Ephemerides, an. 13. obs. 64. presents us with the relation of a shepherd in Denmark, who administered an infusion of the berries in wine in the dysentery, which was there very common, and very obstinate ; adding, that it was attended with great success, not only restraining the flux, but carrying off the disorder by sweat. Mr. Ray observes further, that, correspondent with this practice, Conrade Gefner actually prepared a syrop from the berries, and gave it in dysenteric cases with great success. This account is found in Gefner's Epistles, and is quoted also by Dr. Haller, (23) when treating of this plant. Possibly its efficacy in these cases may be accounted for, from considering it merely in the quality of an opiate ; and

(22) Raii Hist. Plant. I. p. 681.

(23) Enumerat. Stirp. Helvet. p. 507.

therefore it cannot be advisable to use it, when safer medicines are always at hand.

Its external use seems to be of as long a date as its internal; and it was on account of its cooling and repellent quality, that it came into credit as a fucus among the Italian ladies. Matthiolus recommends it in the erysipelas, the shingles, and other inflammatory disorders of the skin. The leaves, applied in the form of a cataplasm, are much celebrated by many writers, as of great use in resolving tumors, particularly of the breast, and even such as are of a schirrous and cancerous nature. Many of the old authors (24) mention this application of it, among other of the cooling and narcotic herbs; such as the common nightshade, henbane, hounds-tongue, &c. which it was usual to apply on such occasions. Mr. Ray informs us, that Mr. Percival Willughby experienced its efficacy repeatedly, in discussing hardneffes and cancerous tumors in the breast.

Its relaxing quality is very surprising, as appears by that memorable case related by the last-mentioned author, of a lady's applying a leaf of it to a little ulcer, suspected to be of the cancerous kind, a little below her eye, which rendered the pupil so paralytic, that it lost all its motion for some time afterwards: and that this event was really owing to that application, appears from the experiment's being repeated with the same effect three times.

The German physicians have gone much further: they have even ventured to give it inwardly in cancerous cases. Dr. Haller, when treating of the qua-

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(24) See Foreftus, Etmuller, and the old chirurgical writers.  
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lity of this plant, refers to Junker, and others of the modern physicians, as recommending the decoction of it with caution, that it be not given in such quantity as to cause sleep. So long since as the year 1739. there was a thesis published at Hall, by Michael Albert, in which the *Bella-donna* is proposed as a specific in cancerous cases. What other physicians patronize this use of it, I cannot say, having but little opportunity of consulting those academic pieces, which are of such eminent use in compilations of this kind. Thus much is certain, that its use, in such cases, rather gains ground; and the case, published in the French *Bibliothèque* (25), printed at the Hague, of an ulcerated cancer being radically cured by an infusion of the leaves of this plant in water, deserves particular attention, on account of its being so well attested. The case is extracted from an inaugural thesis of Professor Lambergen's, who was the physician concerned (26). The event was so singularly happy and successful in this instance, that we hope it will need no apology, if we give a particular detail of it.

The person afflicted with this miserable disease was a widow of 34 years of age, and mother of four children. She had but weak nerves, and had been subject to inflammatory disorders. She informed M. Lambergen, upon examining her, that she had had a quincy six times, which had twice ended in suppuration: that eight years before her right breast

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(25) *Bibliothèque des Sciences et des beaux Arts pour les mois Jan. Fevr. Mars. 1755.*

(26) *Tiberii Lambergen Lectio inauguralis, sive Ephemeriden perfuncti Carcinomatis. Groning. 1754.*

had suppurated, and discharged much matter: that two years after it suppurated again; and that at the end of another year both breasts underwent the same fate; since when the right had remained schirrous, but was without pain, except when she handled it. She had suckled her youngest child about six months, when she was seized with a fever; and the left breast (with which only she could suckle since the other had suppurated) soon swelled, inflamed greatly, was very painful, and soon became almost as large as a child's head. Dr. Lambergen being called in, ordered copious bleeding, and that the child should suck as little as possible. She took some medicines, and soon recovered.

A year passed after this without any bad accident; when the lunar evacuations, which she had had from her 18th year, beginning to diminish, she felt a pricking pain in her left breast, and her right began to swell. Upon a fright, she had a fall, which accident increased both the pain and swelling; and she had recourse again to Dr. Lambergen.

He found the tumors in her right breast much enlarged, and so connected together, as to feel like one large one only. On the upper part of the breast, upon the pectoral muscle, it felt rugged, unequal, and almost as hard as a stone. The patient complained of a constant itching in the part, and at times a pungent pain, which seemed to shoot from the armpit, and end in the tumor. Under this armpit the glands were hard and schirrous; and the left breast was not exempt from the like indurations. A vein or two on the right breast was a little enlarged, otherwise no alteration. It was no hotter than common;

mon; nor had it undergone any change of colour. To mitigate the pain of the schirrous, Dr. Lambergen ordered the following plaister :

℞ *Ung. Diapomphol.* ʒ ij. *Amalgam. merc. et Plumb.* ʒ iij. *Sperm. Cet.* ʒ j. *M.*

With this external application he prescribed likewise the following powders, to be taken night and morning, and gave directions relating to the non-naturals.

℞ *Coral. rub. Antimon. Diaphoret. illot. Sperm. Ceti* a ʒ ij. *Laud. gr.* vj. *M.* for 12 doses.

Under this method the pain remitted, but the tumor enlarged, and a little rising was observed on the upper part of it; and towards the nipple, where there was the least hardness, a small spot was perceived, which, at the next return of the catamenia, inflamed, and became the seat of the most excruciating pain. Dr. Lambergen, during this period, in the room of the powders, substituted emmenagogic pills, and ordered the pediluvium. She lost ten ounces of blood from the foot: and by these means the swelling of the breast diminished, and the patient suffered very little for some days. This truce, however, was but temporary: the rising on the upper part of the tumor began to inflame, itched intolerably, the pain returned, was almost perpetual, and insupportably pungent.

In this dreadful state was the patient, when Dr. Lambergen desired the late Dr. du Bois, Dr. Winter, physician to the house of Orange and professor at Leyden, together with Dr. Van Arum of Leewarden, physician in ordinary to the Princess dowager, to visit her. These gentlemen examined her many times, and unanimously agreed, that it was now no less than

a confirmed cancer. It was Professor Winter, who acquainted Dr. Lambergen, that he had heard M. Degner, a celebrated physician at Nimeguen, speak of the *Bella-donna*, as a sovereign remedy against inveterate schirri; adding, nevertheless, that he had never tried it himself.

In such a case as this, where death seemed inevitable, a dangerous remedy is to be preferred to none at all. Dr. Lambergen therefore determined to try it upon his patient; but, knowing the character, which the plant bore, he resolved to try the effects of it upon himself first. To this end, he poured ten tea-cups of water upon a scruple of the leaves, which had been gathered and dried three years: he let it stand all night lukewarm. Of this infusion he took half a tea-cup full, being the twentieth part of the whole, in the morning fasting; but perceived no effect from it. This determined him the next morning to double the dose; which produced a slight vertigo, and for an hour or two an uncommon dryness in his mouth. Being thus prepared, as he knew his patient had but a weak nervous system, he determined to begin with caution.

It was the 14th day of January 1745, that she took the first dose, being one tea-cup full. It had the same effect upon her, as it had had on her physician; and moreover rendered her pulse weaker and quicker than usual. For seven mornings successively she took the same dose, which, in general, produced the same effect. At the same time the plaster was renewed, with the addition of a few grains of opium. Under this method her pain was mitigated; but, before the latter end of the week, returned again  
more

more frequently, and more acute; so that she was reduced to a most deplorable condition. The rising on the upper part of the breast became livid; the place near the nipple before-mentioned inflamed, and was very painful; and two little pointed risings were observed upon it, together with a slight fissure or opening. As the menstrual period was approaching, the infusion and the powders were omitted, and the pediluvium substituted. A mixture with crabs-eyes, *spt. nitri. d. and syr. e mecon.* relieved the patient from some spasmodic complaints she had at this time, and the menses returned more copiously than ever. The 27th she took something more than a tea-cup of the infusion, being the first dose of the second scruple: her body was soluble; her breast less swelled, but the pain returned very acute, and seemed to terminate in the little callous eminence on the upper part of the breast, which now likewise became more pointed. The 28th she took the same quantity of the infusion. The two little pointed places near the nipple were now become two little holes, but had not discharged any matter. The other sore on the upper part of the breast was more livid still, and more painful, and had risen into two little whitish points. The powders were omitted this night, as they had been now and then at other times. The 29th, very little sleep the foregoing night, great pain from the upper sore, the holes near the nipple were become larger, and had run a yellowish matter. The same dose of the infusion as before. At night she had most acute pain from the upper sore. The 30th both sores were nearly in the same state. All remedies were

this day laid aside, except the infusion ; of which she took a cup-full and an half ; but her mouth soon became so dry, that she could scarcely swallow a little tea ; and the vertigo was so violent, that she staggered : her sight was so weakened, that she could scarcely read. Notwithstanding this, she had no anxiety, nor nausea, nor pain ; but her appetite was less, and her pulse quicker. The 31st all the last-mentioned symptoms continued the same : the two pointed eminences on the upper part of the breast were become two little holes likewise, and had discharged a few drops of good matter.

The 1st of February the upper sore had discharged but little matter, and that thinner than before. That near the nipple was become more livid, and the two holes were larger ; but there had been no discharge for several days. The pulse and appetite were good, sleep natural, the body open. The pain, indeed, was continual, but less acute. The 2d, little alteration. The sores discharged but little. From this time they were dressed twice in a day with *Nutritum*, and over all the *Emp. Saturnin*. The pain was not so violent, but was felt in another place, which began to swell. From the 6th to the 28th better and worse : the pain more or less acute ; and the catamenia passed without any bad effects. At the end of this month the schirrus all over the breast was much softened, and sensibly diminished. This was the opinion of Dr. du Bois and Dr. Winter, as well as of Dr Lambergen.

The 1st of March an inflammation arose on the sole of the right foot, and extended up the leg about four fingers above the heel. It ended in two great blisters,

blisters, as if from a burn, which were embrocated with wine and oil, and nothing bad followed. To the 22d, the patient was better and worse. The menstrual period did not pass without some disturbance. The 26th she began with the infusion of the tenth scruple, and every thing went on for the better to the end of the month.

From the 1st of April to the 6th the ulcers were firm and dry ; but the pain in the breast increased. Several blisters arose on the foot, along the leg, and even upon the thigh, on the left side. One upon the sole of the left foot, for 24 hours discharged an incredible quantity of thick whitish lymph. The pain from these blisters was beyond all she had felt before. It continued the 7th, 8th, and 9th ; and new blisters arose on the thigh. The excoriated parts were all dressed with spirit of wine. During the disturbances from these new complaints, the breast was likewise painful, and swelled, tho' the ulcer near the nipple was dry, and the other discharged little or nothing. The 10th she had less pain both in her foot and in her breast. The upper sore was closed ; the foot discharged less. From the 11th to the 15th, notwithstanding the weather was very cold, her pain still lessened. The ulcer remained firm, and the whole breast was softened : her foot mended ; and all went on for the better till the 18th, when the ulcer on the upper part of the breast opened again in three places, and discharged a thick yellowish matter. The nipple of the left breast also became inflamed, and surrounded with pimples, which discharged a little lymph. In the mean time the cancerous breast was more painful than on the preceding days. The

19th the pain less, tho' continual. Some discharge from the foot still; but the ulcers on the thigh were healed, and another blister arose. The 20th the upper sore on the breast closed again; but that near the nipple seemed to threaten another opening, and in fact it did, on the 24th, in three places. On the 20th the catamenia returned very copiously, and superseded the use of the pediluvium. The 25th she began with the infusion of the fourteenth scruple of the *Bella-donna*, which, it is to be observed, was scarcely ever omitted. The 26th a blister arose at the end of the fore-finger on the left hand, was very painful, and discharged a great quantity of serous matter. The next day both ulcers on the breast discharged a small quantity of lymph; otherwise the breast was less painful.

From the 28th of April to the 7th of May every thing went on for the better: the cancerous breast was almost without pain. The ulcers ran very little; but the excoriation and pain were much worse from the nipple of the left breast, which also discharged a great quantity of lymph. The 8th the upper ulcer on the right breast closed; but the other opened again. From the 8th to the 16th no change for the worse: on the contrary, the left breast was well; the right less painful, and discharged but very little. From the 18th to the 22d the menstrual period: all things on the mending hand; the ulcer healed, and the patient had little or no pain: but, from the 23d to the 27th, the pain returned something worse, and there was some discharge from the breast.

The *Nutritum* was now discontinued, as too emollient. The 27th the infusion from the eighteenth scruple of the *Bella-donna* was begun with.

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From the 28th of May to the 12th of June the breast still painful : in the mean time, however, the ulcers remained firm and dry. The tumor and schirrosity of the breast diminished in such a manner, that, excepting its being a little bigger than the other, it had intirely resumed its natural form and colour. No indurations in the left breast, nor of the glands in the right armpit.

The 13th of June she took a journey, was absent some weeks, and returned in perfect health. Dr. Lambergen advised her, but in vain, to continue the infusion. Nevertheless, she was obliged now and then, when she felt pain, to have recourse to it, and was always relieved by it : and in the course of another year the remains of the schirrus were totally wasted.

It is now (1754) eight years since, and she has had no relapse, no pain, no hardness in her breast ; has married a second husband, by whom she has had a child, which she suckled. What more can be requisite to ascertain a cure ?

Thus we have given a detail of this memorable case ; wherein we see, that six drachms of one of the most poisonous vegetables that the world produces actually cured a woman, whom the most able physicians had given up as incurable ; and who must otherwise have finished her miserable days in the most deplorable sufferings.

It must not be omitted, that notwithstanding the daily use this woman made of the *Bella-donna*, she was not accustomed to it in the manner as people are who take opium. Dr. Lambergen always prepared the infusion himself, and never had occasion to make

it stronger than at the first, as the patient always found the like effects from the same dose.

So singular and happy an event, as attended Dr. Lambergen's administration of this plant, certainly merits the attention of the medical profession; and surely, one may add, entitles the medicine to future trials. And as the authenticity of the case will not be disputed, it is therefore greatly to be wished, that those gentlemen, who belong to the public hospitals, and others that have frequent opportunities of attending patients labouring under this deplorable disease, would give it a further trial. A cancer, even in its latent, but much more in an ulcerated state, is allowedly one of the most terrible and formidable disorders to which human nature is liable; and hath long been ranged, very justly, among the *opprobria medicorum*, instances of a radical cure being rarely met with: indeed, one of the first physicians (23) of our age tells us, that it is not known to have been cured at all, but by a total extirpation of the part; and all, who are conversant in physic and surgery, know very well, that that operation is frequently no security against its return.

I have here endeavoured, in as concise a manner as might be, to exhibit the history of this extraordinary plant. The being able barely to know and distinguish one plant from another, however praiseworthy in itself, ought not to be the only view of our botanical researches: we should do more, and

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(23) Dr. Van Swieten Comment. in Aphor. Boerh. sect. 492.

endeavour

endeavour to investigate, in the most attentive manner, the properties of vegetable productions, in order to accomodate them to the various exigencies of human life.

Several classes of vegetables, from their merely herbaceous taste, and, as far as we can conjecture, from their other sensible qualities, seem to be formed by the great Author of nature principally for the nourishment of animals: but those plants, which are endued with principles so highly active, as, when taken in small quantities, to be able to put an end to animal life; such deserve to be more minutely inquired into, as under certain circumstances these principles, properly directed, may conduce to great and good ends. We should endeavour, therefore, diligently to inform ourselves, in what quantities, and under what circumstances, the poison ends, and where the medicine begins. In this respect we have certainly a notable instance in the history before us in Professor Lambergen; whose industry, more especially as it was attended with success, merits our greatest acknowledgements; inasmuch as he has informed us, with no small degree of accuracy and precision, that the plant under consideration, which is well known to be of a highly deleterious nature, and that even in a small quantity, may be so managed, as to be productive of good effects, not to be found possibly by any other means.

Some of the most efficacious medicines are such, as, being possessed of highly active principles, do greatly disturb the animal œconomy in their operation: nevertheless, however rough the *modus operandi* of any medicine be, if its efficacy by repeated trials

trials be approved and confirmed, this is so far from proving a discouragement to its use, that we ought to regard the discovery of such a one as a valuable acquisition to the province of physic, especially if it is applicable in desperate and obstinate cases. The *Bella-donna*, on the contrary, supposing future trials should prove it as happily successful as Professor Lambergen has experienced it, is a medicine of a different kind; inasmuch as its operation is mild, when compared with that, which attends the exhibition of many others: we should therefore have double reason to rejoice at the discovery.

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XIII. *An Account of some of the Antiquities discovered at Herculaneum, &c. In a Letter to Thomas Birch, D.D. Secret. R. S. By John Nixon, A.M. F. R. S.*

Reverend Sir,

Read Feb. 24, 1757. **T**HE subject of this letter are some cursory observations made by me last spring, upon viewing the curiosities found at Herculaneum, and the places adjacent. I deferred putting them into any order, till I came to town, and had seen, by perusing the Transactions of the Royal Society, whether some abler hand had not already prevented me, and made any further communication needless: but as I now find, that no notice has been hitherto taken of several particulars, which, in my  
humble